

## A CATALOGUE OF AUSTRALIAN GAMMARIDEA

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The character of the research work that has been done on the *Gammaridea* during the last twenty-six years makes it necessary to preface this catalogue by a very brief summary of some of the results in so far as they bear on the changes that occur in individuals during development, and so affect taxonomic procedure.

1909 SEXTON, E. W.—Proc. Zool. Soc., 1909, vol. ii, pp. 849-851:—

- (1) Secondary sexual characters undergo great modification after sexual maturity is reached. The female undergoes quite as much modification as the male.
- (2) There is frequently a great modification of the chitinous cuticle with age.
- (3) The mouth-parts appear to be practically constant through the various stages taken under the same condition.

1911 SEXTON, E. W.—Jour. Mar. Biol. Assn. U.K. (N.S.), vol. ix, p. 220:—

- (1) The proportions of the peduncle segments alter with growth.
- (2) Spinose processes on the cuticle commence as small swellings, developing at maturity to round tubercles and assuming their characteristic shape with the further development of the animal. (In this case *Laetmatophilus tuberculatus* Brug.)

1919-1922 SEXTON, E. W., and HUXLEY, J. S.—Jour. Mar. Biol. Assn. U.K. (N.S.), vol. xii, pp. 560-567.

Intersexes occur in *Gammarus*.

1923-1925 SEXTON, E. W.—Jour. Mar. Biol. Assn. U.K. (N.S.), vol. xiii, pp. 340-401.

This is a careful study of the growth changes of *Gammarus*.

1. "There is a constant change in the proportions of the body from birth to maturity, *e.g.*, the pereon which is practically subequal to the pleon in length at birth, is a third as long again at maturity."
2. "The early growth-stages of the male are externally indistinguishable from those of the female, and the secondary sexual characters are not recognised until the sixth stage."
3. "The male takes longer than the female to reach the "definitive adult" stage, and its secondary sexual characters undergo much greater modification. This fact, hitherto unknown, is probably the cause of much of the confusion in the taxonomy of the Amphipoda, the different breeding stages being described as different species."

Another cause of confusion may be the similarity of the young immature stages of the species of a genus. If, as in the case of *Gammarus*, several closely allied species inhabit the same locality, a dredging will contain the growth-stages of various species, with more young specimens than mature. In many instances these have been described as belonging to one single variable species, and the specific boundaries enlarged to admit of the so-called "varieties".

4. "The differences between species—even closely allied species—is very marked, in the number of moults to maturity, the length of the moulting period, in the size and number of the eggs, the length of the incubatory period, and the times of extrusion of the young."
5. "The side plates, which may undergo less change than other external parts, appear to be the most reliable characters for distinguishing the species of a genus, at least as far as *Gammarus* is concerned."
- 1928 KUNKEL, B. W., and ROBERTSON, J. A.—*Jour. Mar. Biol. Assn., U.K.* vol. xv, pp. 655-681.  
A study of the relative growth in *Gammarus chevreuxi*.
- 1929 STEPHENSEN, K.—*Die Tierwelt der Nord- und Ostsee, Teil x, f. "Amphipoda."*  
General discussion, pages x, f, 3-39.
- 1932 PIRLOT, J. M.—*Siboga-Expeditie, livr. cxvii, pp. 100-111.* Les maxillipèdes des Amphipodes fouisseurs.

Although these studies are strictly only applicable to the species concerned, it is legitimate to assume the possibility that the results may also apply in some measure throughout the Sub-Order.

For general taxonomic reference the following publications are useful:—

- 1906 STEBBING, T. R. R.—*Das Tierreich, vol. xxi.* Amphipoda I, *Gammaridea*.  
1927 SCHELLENBERG, A.—*Nordisches Plankton, Lfg. 20 (vol. vi, pp. 654-720).*  
1928 STEPHENSEN, K.—*Die Tierwelt, pp. x, f, 45-170.*  
1932 BARNARD, K. H.—*The Discovery Reports, vol. v, pp. 1-326.*  
1935 STEPHENSEN, K.—*Troms. Mus. Skrifter, vol. iii, pt. 1.* "The Amphipoda of N. Norway and Spitsbergen."

A reasonable working bibliography can be obtained from the above reports. The tally recorded from Australian waters is now 190 species.

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#### Family LYSIANASSIDAE.

- Amaryllis macrophthalma* Haswell. Stebbing (1), pp. 569, 633; Chilton (11), p. 55; Schellenberg (34), p. 243; Hale (23), p. 208; Schellenberg (38), p. 10; Barnard (40), pp. 114-116, (39), p. 34; Pirlot (44), pp. 122-123.
- Amaryllis bathycephala*. Stebbing (1), p. 633; Pirlot (44), p. 122.
- Onesimoides carinatus*. Stebbing (1), p. 633; Pirlot (44), p. 139.
- Waldeckia chevreuxi*. Stebbing (1), p. 633; Chilton (11), pp. 40-41; Chilton (12), p. 4; Hale (23), p. 208.
- Waldeckia obesa* (Chevreux). Stebbing (1), p. 572; Chilton (29), pp. 56-57; Chilton (28), p. 471 (*W. zschau*); Chevreux (30), p. 91; Schellenberg (34), pp. 253-255; Barnard (39), pp. 41-42.
- Waldeckia kroyeri* (White). = *Epippiphora kroyeri* White. = ? *W. obesa* (Chev.); Chilton (11), pp. 35-40; Hale (20), p. 314; Hale (23), pp. 203, 206, 208.
- Parawaldeckia hidderi* (Smith). See under *W. obesa* and *W. kroyeri*; and Tattersall (14), pp. 3-4; Monod (35), pp. 51-52; Stephensen (36), pp. 300-302; and Schellenberg (38), p. 6.

The only contribution that can be made to the knowledge of the forms contained within the above three names is that the examination of a long

series from St. Vincent Gulf makes it very difficult to maintain the specific identity of *W. obesa* (Chev.). Hale (23) refers *Epippiphora kroyeri* White to *Waldeckia*. Various authors have suggested the identity of *E. kroyeri* (White) and *W. obesa* (Chev.) but it appears better to leave the question still open, pending the publication of the "Aurora" amphipods (G. E. Nicholls) and the results of the examination of the recent "Discovery" Lysianassids. It is evident that the disentanglement of the relationships and identities of these forms should be attempted with great caution.

- Hippomedon geelongi* Stebbing. Stebbing (1), p. 633.  
*Glycerina tenuicornis* Haswell. Stebbing (1), p. 633.  
*Tryphosa camelus* Stebbing. Stebbing (1), p. 634; Chilton (11), pp. 43-44 [as *T. sarsi* (Bonnier)]; Stephensen (53), p. 82.  
*Tmetonyx miersi* Stebbing. Stebbing (1), p. 634.  
*Lysianassa nitens* Haswell. Stebbing (1), p. 634. Genus uncertain.  
*Lysianassa australiensis* Haswell. Stebbing (1), p. 634. Genus uncertain.  
*Lysianassa affinis* Haswell. Stebbing (1), p. 634. Genus uncertain.  
*Endevoura mirabilis* Chilton. Chilton (11), pp. 44-52.  
*Euonyx normani* Stebbing. Chilton (11), pp. 52-54; Pirlot (44), p. 120.  
 The specimen of Chilton ( $\delta$ ) is probably not the male of *E. normani* Stebbing.

#### Family STEGOCEPHALIDAE.

- Andaniotes corpulentus* (G. M. Thomson). Stebbing (1), p. 575; Chilton (11), p. 55; Barnard (37), p. 328; Schellenberg (38), pp. 51-52.

#### Family AMPELISCIDAE.

- Ampelisca acinaces* Stebbing. Stebbing (1), p. 635; Chilton (33), pp. 75-93; Barnard (24), p. 119.  
*Ampelisca australis* Haswell. Stebbing (1), p. 634.  
*Ampelisca pusilla* Sars. Stebbing (1), p. 576; Chilton (10), p. 79; Barnard (47), p. 279.

#### Family HAUSTORIIDAE.

- Urohaustorius halei* Sheard. Sheard (26), pp. 445-449.  
 Two simple eyes are visible as white circular patches in freshly caught specimens. These fade rapidly in spirit. The peduncle of antenna 1, although swollen, is flattened on the inferior surface.  
*Urohaustorius vercoi* Sheard. Sheard (26), pp. 449-450.

#### Family PLATYISCHNOPIDAE.

- Platyischnopus mirabilis* Stebbing. Stebbing (1), p. 635 [non Barnard (40), pp. 142-143 = *P. capensis* Barnard (41), pp. 338-340]; Chilton (12), pp. 4-6; Pirlot (43), pp. 103, 110; Pirlot (45), p. 180.

#### Family PHOXOCEPHALIDAE.

- Phoxocephalus bassi* Stebbing. Stebbing (1), p. 635.  
*Pontharpinia pinguis* (Haswell). Stebbing (1), p. 635.  
*Pontharpinia rostrata* (Dana). Stebbing (1), p. 635; Stebbing (32), p. 357; Barnard (24), p. 119; Pirlot (43), p. 62.  
*Pontharpinia barnardi* Pirlot. Barnard (24), p. 119 (as *P. rostrata*); Pirlot (43), pp. 62-68.  
*Pontharpinia villosa* (Haswell). Stebbing (1), p. 635; Tattersall (14), pp. 4-6; Schellenberg (34), pp. 300-301; Schellenberg (38), pp. 75-78.

## Family AMPHILOCHIDAE.

*Gitanopsis squamosus* (Thompson). Chevreux (30), p. 104 (as *G. antarctica*); Chilton (29), p. 479 (as *Amphilocheus squamosus*); Chilton (15), pp. 84-85 (as *A. squamosus*); Schellenberg (34), pp. 301-302; Schellenberg (38), p. 95.

Barnard (39), p. 104-105, differs from this synonymy. See his note under *G. antarctica*.

*Gitanopsis marionis* (Stebbing). Stebbing (1), p. 577 (as *Amphilocheus marionis*); Schellenberg (34), p. 302; ? Stephensen (36), pp. 308-309 (as *A. squamosus*); Schellenberg (38), p. 95.

*Amphilocheus neapolitanus* Della Valle. Chilton (15), pp. 82-84.

Chilton states that the Australian specimens which he refers to the above species cannot be distinguished from *Gitanopsis pusilla* Barnard; Barnard (40), pp. 144-145; Barnard (41), pp. 341-342. Schellenberg (50), 140-141, maintains *Gitanopsis pusilla* as a separate species.

It is unfortunate that the characters involved in the separation of the above species are so subject to variation as to be of dubious value. While it is possible, for example, to readily distinguish between different types of molar processes, the differentiation is difficult in borderline cases, and confusion in synonymy results from the bias of the author.

Sexton (*loc. cit.*, p. 17) has clearly demonstrated the occurrence of marked growth changes in the Amphipod genus *Gammarus*. One result of this investigation is that comparisons between specimens involving relatively small differences, are of little value unless the specimens are at the same growth stage.

*Cyproidea ornata* Haswell. Stebbing (1), p. 578; Hale (20), p. 314 (by a misprint as *Stenothoe valida*); Corrected, Hale (23), p. 209; Barnard (41), p. 341.

*Paracyproidea lineata* Haswell. Stebbing (1), p. 636.

*Gitanogeiton sarsi* Stebbing. Stebbing (1), pp. 578-580.

*Cyclotelson purpureum* Potts. Potts (4), pp. 87-88.

## Family SEBIDAE.

*Seba typica* (Chilton). Chilton (11), pp. 56-59; Chilton (17), pp. 269-270; Schellenberg (34), p. 309; Schellenberg (38), pp. 83-92 (revision of family); Barnard (37), p. 339 [Barnard (39) cannot mean to unite this species with *S. antarctica* Walker, as he has retained the later specific name.]

## Family LEUCOTHOIDAE.

*Leucothoe spinicarpa* (Abildgaard). Stebbing (1), p. 636; Chilton (28), pp. 478-479; Barnard (40), pp. 148-149; Chilton (11), pp. 59-60; Tattersall (14), p. 6; Chilton (13), p. 34; Chilton (15), pp. 85-88, (Syn.); Monod (35), p. 53; Hale (23), pp. 210-211; Barnard (39), p. 106; Schellenberg (38), p. 92; Barnard (47), pp. 175-177; Cecchini (56), pp. 175-176.

A cosmopolitan species comprising *L. spinicarpa* Stebbing, *L. miersi* Stebbing, *L. trailli* G. M. Thomson, *L. tridens* Stebbing, *L. brevidigitata* Miers, *L. antarctica* Pfeffer, *L. commensalis* Haswell, *L. gracilis* Haswell, and *L. dicmenensis* Haswell.

*Leucothoe furina* (Savigny). Schellenberg (51), pp. 635-638; Barnard (24), p. 120.

*Paraleucothoe novae-hollandiae* (Haswell). Stebbing (1), p. 581; Chilton (15), pp. 88-89; Chilton (12), pp. 6-7.

## Family STENOTHOIDAE.

*Stenothoe valida* Dana. Stebbing (1), p. 637 (as *S. miersi* Haswell); Chilton (15), pp. 95-100; Chilton (17), p. 270; Barnard (37), p. 341; Schellenberg (51), p. 641.

*S. dollfusi* Chevreux appears to be a dimorphic male of *S. valida* Dana.

## Family PHLIANTIDAE.

## Sub-family EOPHLIANTINAE.

*Eophlantis tindalei* Sheard. Sheard (26), pp. 457-459.

*Bercenna nichollsi* Sheard. Sheard (26), pp. 461-462.

## Sub-family PHLIANTINAE.

*Palinnotus thomsoni* Stebbing. Stebbing (1), p. 637; Sheard (26), p. 463.

*Iphiplateia whiteleggei* Stebbing. Stebbing (1), p. 637; Sheard (26), p. 463.

*Quasimodia womersleyi* Sheard. Sheard (26), pp. 464-466.

*Quasimodia capricornis* Sheard. Sheard (26), pp. 466-467.

*Quasimodia barnardi* Sheard. Sheard (26), p. 468.

Since the publication of the above paper, records of two additional genera in this sub-family have been received. *Pariphinotus* (Kunkel, 1910, Trans. Connecticut Ac. Arts and Sci., vol. xvi, p. 19).

This genus is very close to *Heterophilias* (Shoemaker, 1934, Papers from Tortugas Lab. Carnegie Inst., Wash., vol. xxviii, p. 250), and the type of *Pariphinotus* should be re-examined to determine whether the third uropods, which are very small in this group, are really absent.

The two genera are interesting in possessing a partially reduced inner ramus to pleopod 3.

## Family COLOMASTIGIDAE.

*Colomastix brazieri*, Haswell. Haswell (1), p. 637; Chilton (28), p. 484; Chilton (11), pp. 60-64.

See notes by Barnard (41), p. 347, and (39), p. 114.

## Family OCHLESIDAE.

*Ochlesis innocens* Stebbing. Stebbing (1), p. 582.

## Family ACANTHONOTOZOMATIDAE.

*Iphimedia ambigua* (Haswell). Stebbing (1), p. 584.

*Iphimedia discreta* Stebbing. Stebbing (1), p. 586; Schellenberg (51), p. 643; Barnard (37), p. 346.

*Iphimedia stimpsoni* Bate. Stebbing (1), p. 638; Barnard (37), p. 346.

## Family LILJEBORGIIDAE.

*Liljeborgia acquabilis*. Stebbing (1), pp. 588-589; Chilton (11), pp. 64-65 (as *L. brevicornis*); Barnard (37), p. 365.

*Liljeborgia dubia* (Haswell). Stebbing (1), p. 638; Chilton (28), p. 485; Chilton (11), p. 65; Barnard (37), p. 365; Barnard (39), p. 142.

## Family PARDALISCIDAE.

*Pardalisca australiensis* Barnard. Barnard (24), p. 121.

## Family OEDICEROTIDAE.

- Exoediceros fossor* Stimpson. Stebbing (1), p. 638; Sheard (26), pp. 454-455.  
*Exodiceros maculosus* Sheard. Sheard (26), pp. 452-455.  
*Oediceroides ornatus* (Stebbing). Stebbing (1), p. 589; ? non Chilton (11), p. 66, ? = *O. apicalis* Barnard.  
*Oediceroides pirloti* Sheard. Sheard (27), pp. 173-175.  
 Further specimens from Sellick's Reef, South Australia, show that peraeopod 1 is furnished with a very weak seventh joint.  
*Oediceroides apicalis* Barnard (24), pp. 121-122.  
*Periocolodes aequimanus* (Kossman). Schellenberg (51), p. 641; Barnard (24), p. 121.

## Family SYNOPIIDAE.

- Synopia ultramarina* Dana. Barnard (24), p. 122. [Synonymy in Schellenberg (34), p. 341.]

## Family TIRONIDAE.

- Bruzelia australis* Stebbing. Stebbing (1), p. 590; Barnard (40), p. 169 (note).  
*Syrrhoe semiserrata* Stebbing. Stebbing (1), p. 639.

## Family CALLIOPIIDAE.

- Sancho platynotus* Stebbing. Stebbing (1), p. 639.  
*Paracalliope fluviatilis* G. M. Thomson. Stebbing (1), p. 639.  
 Later literature is referred to under *P. indica* Barnard (47), pp. 280-281.  
 It is doubtful whether Chilton's extra-Australian specimens can be referred strictly to *P. fluviatilis* Thomson.  
*Harpinoidea drepanocheir* Stebbing. Stebbing (1), p. 592.  
*Apherusa laevis* (Haswell). Stebbing (1), p. 639.  
 This species is still obscure.

## Family ATYLIDAE.

- Nototropis homocheir* Haswell. Stebbing (1), p. 639; Chilton (28), pp. 507-508; Schellenberg (28), p. 167.  
 This species is common in South Australian and Victorian waters.  
*Nototropis minikoi* (Walker). Chilton (12), pp. 9-10; Barnard (37), p. 383.

## Family EUSIRIDAE.

- Eusiroidea monoculoides* (Haswell). Stebbing (1), p. 595; Chilton (29), pp. 57-58 (as *Bovallia monoculoides*); Barnard (40), pp. 174-175; Chilton (11), pp. 66-68 (as *B. monoculoides*); Chilton (17), pp. 270-271 (as *B. monoculoides*); ? Stephensen (36), pp. 316-317 (as *B. monoculoides*); Halc (23), pp. 211-212 (as *B. monoculoides*); Schellenberg (38), pp. 173-174 (Synonymy).

This species is often confused with the genus *Bovallia* (*B. gigantea*). See Chevreux (30), p. 168; Schellenberg (38), p. 180; and Barnard (39), pp. 196-197 (for literature and discussion). Examination of specimens referable to *E. monoculoides*, in the South Australian Museum, appear to indicate that the conclusions drawn by Schellenberg and Barnard are correct.

The specimens obtained from Antarctic Waters appear to be referable to *Bovallia*.

- Eusiroidea crassi* Stebbing. See discussions under the above references.  
*Eusiroidea lippus* Haswell. Stebbing (1), p. 639.  
*Rachotropis platycera* Barnard. Barnard (24), p. 122.

## Family PONTOGENEIIDAE.

See Revision and Discussion: Stephensen (36), pp. 315-342; Schellenberg (52), pp. 273-282; (38), pp. 180-202 and discussion; Barnard (39), pp. 195-211.

*Schraderia serraticauda* (Stebbing). Stebbing (1), p. 640 (as *Atyloides serraticauda*); Stephensen (36), p. 339; Schellenberg (52), p. 280 [as *Atyloides gracilis* Pfeffer = *A. serraticauda* Stebbing]; Schellenberg (38), pp. 193-194 (as *A. gracilis*); Barnard (39), pp. 204-205.

If Pfeffer's name has the priority, then Pfeffer's genus has the priority.

*Pseudomoera gabrieli* (Sayce). Stebbing (1), p. 640; Stephensen (36), p. 324; Schellenberg (52), p. 281.

*Paramoera fontana* (Sayce). Stebbing (1), p. 640; Stephensen (36), p. 324; Schellenberg (52), p. 281.

Probably the three species *P. fontana* (Sayce), *P. japonica* Tattersall, and *P. aucklandica* (Chilton) should be transferred to *Pseudomoera*.

*Paramoera fasciculata* (Thomson). Stebbing (1), p. 640; Stephensen (36), pp. 332-336; Schellenberg (52), p. 280.

*Paramoera austrina* (Bate). Stebbing (1), p. 640 (part). For references and discussions see Chilton (11), pp. 68-70; Schellenberg (52), pp. 280-281; Monod (35), pp. 55-57; Stephensen (36), pp. 329-332; Schellenberg (38), pp. 194-197; Barnard (39), pp. 206-207.

Barnard's remarks, (39), p. 207, are very much to the point. In this case it is not a question of nomenclature, but of the identification of Dana's species with those described later—an identification difficult to establish.

*Paramoera megalophthalma* (Haswell). Stebbing (1), p. 640 (part); Stephensen (36), pp. 336-339; Schellenberg (52), p. 281.

*Pontogeneia tasmaniae* (Thomson). Stebbing (1), p. 640; Schellenberg (52), p. 278.

*Pontogeneia simplex* (Dana). Stebbing (1), p. 640; Chilton (28), p. 495 (as *P. danai*); Stephensen (36), p. 381 (as *P. danai*); Schellenberg (52), p. 278, and (38), pp. 181-184; Barnard (39), p. 198.

No critical determination of any species of the *Pontogeneiidae* should be attempted until the discussions cited above have been considered carefully.

## Family AMATHILLOPSIDAE.

[Pirlot (45), p. 202.]

*Amathillopsis australis* Stebbing. Stebbing (1), p. 641; Pirlot (45), p. 203.

## Family GAMMARIDAE.

*Parapherusa crassipes* Haswell. Stebbing (1), p. 641; Chilton (5), pp. 199-207.

*Protocrangonyx fontinalis* Nicholls. Nicholls (19), pp. 71-78.

*Neoniphargus thomsoni* Stebbing. Stebbing (1), p. 641; Smith (2), p. 76 (as *N. montanus*).

*Neoniphargus spenceri* (Sayce). Stebbing (1), p. 641; Smith (2), p. 76.

*Neoniphargus fultoni* Sayce. Stebbing (1), p. 641.

*Neoniphargus obrieni* Nicholls. Nicholls (19), pp. 79-86.

*Neoniphargus branchialis* Nicholls. Nicholls (16), pp. 105-111.

*Neoniphargus exiguus* Smith. Smith (2), p. 74.

*Neoniphargus alpinus* Smith. Smith (2), p. 75.

*Neoniphargus niger* Smith. Smith (2), p. 76.

*Neoniphargus tasmanicus* Smith. Smith (2), p. 74.

*Neoniphargus wellingtoni* Smith. Smith (2), p. 75.

*Neoniphargus yuli* Smith. Smith (2), p. 73.

- Uroctena westralis* (Chilton). Chilton (18), pp. 81-84; Nicholls (19), pp. 107-108.
- Uroctena setosa* Nicholls. Nicholls (19), pp. 107-108.
- Uroctena affinis* Nicholls. Nicholls (19), pp. 109-111.
- Uroctena yellandi* Nicholls. Nicholls (19), pp. 113-116.
- Useful discussions of this group of the Gammaridae are contained in the papers by Nicholls cited above.
- Niphargus australiensis* Chilton. Chilton (15), pp. 80-81.
- Niphargus pulchellus* Sayce. Stebbing (1), p. 641.
- See Schellenberg, Zool. Anzeiger, 1932, vol. **xcix**, pp. 313-314, and 1933, vol. **cii**, pp. 255-257, for a partial revision of *Eucrangonyx*, *Niphargopsis*, and *Niphargus*.
- Gammarus mortoni* (Thomson). Stebbing (1), p. 641; Smith (2), p. 77.
- Gammarus antipodens* Smith (2), p. 78.
- Gammarus ripensis* Smith (2), pp. 77-78.
- Gammarus australis* Sayce. Stebbing (1), p. 643; Smith (2), pp. 78-79; Chilton (7), p. 91.
- Gammarus haasei* Sayce. Stebbing (1), p. 643.
- Gammarus barringtonensis*. Chilton (7), p. 86.
- Parelasomopus suluensis* (Dana). Stebbing (1), p. 642; Chilton (12), pp. 7-8; Pirlot (45), p. 233; Barnard (47), pp. 286-287.
- Melita fresneli* (Audouin). Stebbing (1), p. 596; Barnard (40), p. 189-190; Chilton (15), p. 93; Hale (23), pp. 212-213; Schellenberg (51), pp. 644-646; Shoemaker (55), pp. 239-240.
- Add to synonymy *Dulichella spinosa* Stout.
- Melita festiva* (Chilton). Stebbing (1), p. 624; Chilton (6), pp. 359-362.
- Paraceradocus micramphopus* Stebbing. Stebbing (1), p. 596.
- Ceradocus rubromaculatus* (Stimpson). Stebbing (1), p. 642; Chilton (6), p. 366; Chilton (12), p. 8; Tattersall (14), pp. 6-8; Chilton (15), pp. 93-94; Schellenberg (50), p. 154; Hale (20), p. 314; Hale (23), pp. 213-214; Barnard (24), p. 124; Sheard (27), p. 177.
- Maera inaequipes* (A. Costa). Stebbing (1), p. 599; Chilton (6), pp. 365-367; Barnard (40), pp. 193-194; Chilton (8), pp. 17-19; Chilton (11), p. 72; Schellenberg (51), pp. 646-647; Hale (23), pp. 214-215; Cecchini (56), pp. 198-200.
- Maera hamigera* (Haswell). Stebbing (1), p. 642; Barnard (40), pp. 196-197; Chilton (6), p. 362; Chilton (11), p. 73.
- Maera tenella* (Dana). Tattersall (14), p. 8.
- Maera mastersi* (Haswell). Stebbing (1), p. 642; Chilton (6), pp. 367-368; Barnard (40), p. 195; Chilton (11), p. 72; Tattersall (14), p. 9; Hale (23), p. 215; Sheard (27), pp. 177-179.
- Elasmopus subcarinatus* (Haswell). Stebbing (1), p. 602; Chilton (11), p. 76; Tattersall (14), pp. 9-10; Barnard (47), p. 286.
- Elasmopus diemenensis* (Haswell). Stebbing (1), p. 643; Chilton (11), pp. 74-76.
- Elasmopus viridis* (Haswell). Stebbing (1), p. 643; Chilton (6), p. 362; Chilton (11), p. 73; Stephensen (36), p. 342.
- Elasmopus rapax* A. Costa. Chilton (8), pp. 17-19; Schellenberg (51), p. 647, (38), p. 203; Cecchini (56), pp. 201-203.
- Elasmopus suensis* (Haswell). Stebbing (1), p. 643.
- Elasmopus boeckii* (Haswell). Stebbing (1), p. 643; ? Barnard (40), pp. 199-200.
- Elasmopus crassimanus* (Miers). Stebbing (1), p. 643.



## Family DEXAMINIDAE.

*Dexamine miersi* Haswell. Stebbing (1), p. 644.

*Paradexamine pacifica* (Thomson). Stebbing (1), p. 644; Chilton (28), pp. 501-502; Stephensen (36), p. 347; Barnard (37), pp. 389-390, (39), p. 217.

Despite Barnard's remarks the argument raised by Chilton (28), p. 502, appears reasonable.

The position illustrates the necessity of carefully figuring all details of new records of specimens referred to debatable species.

*Paradexamine findersi* Stebbing. Stebbing (1), p. 603.

*Polycheria antarctica* Stebbing (1), p. 644; non Barnard (40), p. 211 (= *P. atollii* Walker); Chilton (28), pp. 502-507. (These remarks may possibly apply to Antarctic forms, but it is doubtful if they are correct of the extra Antarctic records.) Chilton (11), p. 77; Schellenberg (34), p. 370; Hale (23), p. 216; Barnard (37), pp. 390-391; Schellenberg (38), pp. 212-220; Barnard (39), pp. 217-218.

*Polycheria tenuipes* Haswell. Stebbing (1), p. 644; Chilton (28), p. 502; Schellenberg (38), p. 213, p. 221 (as *Polycheria antarctica* Stebbing f. *tenuipes* Haswell).

*Polycheria brevicornis* Haswell. Stebbing (1), p. 644; Chilton (28), p. 502. This is probably a synonym of *P. tenuipes* Haswell.

## Family TALITRIDAE.

*Talitrus sylvaticus* (Haswell). Stebbing (1), p. 644; Smith (2), p. 79; Chilton (7), p. 83; Barnard (40), p. 223; Hale (23), pp. 217-219; Stephenson (46), pp. 19 and 24.

The group accepted by Barnard as belonging to genus *Talitriator* Methuen does not appear to warrant generic rank.

*Talitrus kershawi* (Sayce). Sayce (3), p. 32; Hale (23), pp. 217-219; Stephenson (46), p. 24.

*Orchestia marmorata* (Haswell). Stebbing (1), p. 645; Chilton (9), pp. 97-99; Hale (23), pp. 220-221; Stephensen (46), p. 7.

*Orchestia pickeringii* Dana. Stebbing (1), p. 645; Chilton (1921, Mem. Ind. Mus., vol. v, pp. 538-540) considers this a synonym of *O. platensis* Kroyer; Stephensen (46), p. 8.

*Talorchestia pravidactyla* Haswell. Stebbing (1), p. 644.

*Talorchestia novaehollandiae* Stebbing. Stebbing (1), p. 645; Hale (23), p. 291; Stephensen (46), p. 10.

*Talorchestia quadrimana* (Dana). Stebbing (1), p. 645; Stephensen (46), p. 11.

In a letter to Hale in 1928, Chilton stated, "I think *T. novaehollandiae* is almost certainly = *T. quadrimana*. I examined specimens from West Australia some years ago and came to this conclusion."

Specimens in the South Australian Museum from Brighton must be referred to *T. novaehollandiae*.

A point of difference that appears to be constant between these South Australian specimens and both Dana's and Stebbing's specimens, is the possession by the first-named of an accessory keel to the joint 2 of pereopod 5. [See fig. 217, Hale (23)]. However, even this is faintly indicated in Stebbing's figure of *T. novaehollandiae* (Stebbing, Trans. Linn. Soc., Lond., Ser. 2, Zool., vol. vii, pt. 8, pl. 31A), and its specific value is doubtful.

The value of the palmar process of gnathopod 2 is equally doubtful, as South Australian specimens present all the stages from a pointed process comparable with that figured by Della Valle (Flora and Fauna Golfes V, Neapel, vol. xx, pl. 57, fig. 63), and the rounded angle figured by Stebbing and by Hale.

Regarding Dana's and Stebbing's species, as Stephensen (46) points out, *T. novaezelandiae* possesses marginal spines on the outer ramus of uropod 1, while in *T. quadrimana* these spines are absent. Accordingly, until it is shown that this is a variable secondary sexual or growth factor the two species must be regarded as separate.

- Talorchestia limicola* Haswell. Stebbing (1), p. 645; Stephensen (46), p. 10.  
*Talorchestia diemenensis* Haswell. Stebbing (1), p. 645; Stephensen (46), p. 10.  
*Talorchestia spinipalma* (Dana). Stebbing (1), p. 645; Stephensen (46), p. 12.

Such species of the *Talitridae* as are separated only by variations in the secondary sexual characters of the male, present great difficulties. The palmar shape and armature of gnathopod 2 of the male are particularly variable factors, and it is only by their correlation with other factors that a satisfactory determination can be made.

- Chiltonia australis* (Sayce). Stebbing (1), p. 646; Smith (2), p. 79; Chilton (15), p. 95; Chilton (17), p. 273.

In this species uropod 3 consists of two segments—the peduncle and a single ramus.

- Chiltonia subtenuis* (Sayce). Stebbing (1), p. 646; Hale (23), pp. 221-222.  
*Neobule gaimardii* (Milne-Edwards). Stebbing (1), p. 646.  
*Hyale maroubrae*. Stebbing (1), p. 646.  
*Hyale crassicornis* (Haswell). Stebbing (1), p. 646.  
*Hyale nigra* (Haswell). Stebbing (1), p. 646; Schellenberg (51), pp. 659-661.  
*Hyale rupicola* (Haswell). Stebbing (1), p. 646.  
*Allorchestes compressus* Dana. Stebbing (1), p. 647; Stephensen (36), p. 351.  
*Allorchestes humilis* Dana. Stebbing (1), p. 647.

#### Family AORIDAE.

- Aora typica* Kroyer. Stebbing (1), p. 647; Schellenberg (34), p. 372 (for literature); Schellenberg (38), pp. 230-231; Barnard (39), pp. 220-221.  
*Microdeutopus haswelli* Stebbing. Stebbing (1), p. 647; ? Pirlot (45), pp. 229-230.  
*Lembos philacanthus* Stebbing. Stebbing (1), pp. 605-606; Chilton (11), pp. 77-79.  
*Lemboides australis* (Haswell). Stebbing (1), p. 647.  
*Paraorides unistilus* Stebbing. Stebbing (1), pp. 606-608.  
*Xenocheira fasciata* Haswell. Stebbing (1), p. 648; Barnard (24), p. 125.

#### Family PHOTIDAE.

- Photis brevicaudata* Stebbing. Stebbing (1), p. 648; Chilton (11), p. 125.  
*Photis dolichommata* Stebbing. Stebbing (1), pp. 609-610; Chilton (11), pp. 79-80.  
*Cheiriphotis australiae* Stebbing. Stebbing (1), pp. 611-613.  
*Haplocheira barbimana* (Thomson). Stebbing (1), p. 648; Barnard (37), p. 391; Barnard (39), p. 255.  
*Eurystheus atlanticus* Stebbing. Stebbing (1), p. 648; Chilton (11), p. 81; Tattersall (14), pp. 10-12; Hale (23), pp. 222-223.  
*Eurystheus crassipes* (Haswell). Stebbing (1), p. 648.  
*Eurystheus thomsoni* Stebbing. Stebbing (1), pp. 614-615; Chilton (11), pp. 81-83; Hale (23), p. 224.  
*Eurystheus dentifer* (Chevreux). Stebbing (1), p. 648; Chilton (11), p. 81; Schellenberg (38), pp. 243-244.  
*Eurystheus persotus* Chilton. Chilton (11), pp. 83-85; Hale (23), p. 224.  
*Eurystheus maculatus* (Johnston). Chilton (11), pp. 80-81; Cecchini (56), pp. 220-222.

Stephensen (1927; in Medd., fra Dansk. Naturh. Foren., Bd. 84, pp. 128-129) regards *E. erythrophthalma* (Lilljeborg) and *E. melanops* (G. O. Sars.) as separate species, but Cecchini and Parenzan (56, p. 220) reunites *E. erythrophthalma* with *E. maculatus*.

#### Family AMPITHOIDAE.

*Ampithoe cinerea* (Haswell). Stebbing (1), p. 649.

*Ampithoe quadrimana* (Haswell). Stebbing (1), p. 649.

*Ampithoe flindersi* Stebbing. Stebbing (1), p. 616; Chilton (11), pp. 85-87; Hale (23), pp. 224-225.

*Ampithoe australiensis* Bate. Stebbing (1), p. 649.

*Grubia setosa* (Haswell). Stebbing (1), p. 649; Chilton (13), p. 35; Tattersall (14), pp. 12-13; Schellenberg (51), p. 666; Shoemaker (55), p. 245.

It appears probable that this species is part of the synonymy of *G. filosa* (Savigny), as suggested by Schellenberg and Shoemaker in the references given above.

*Grubia variata* Sheard. Sheard (27), pp. 175-177.

This species may be a variant of the form described by Tattersall (14), pp. 12-14, and may therefore, if the synonymy suggested above be maintained, become a synonym of *G. filosa* (Savigny).

#### Family JASSIDAE.

*Ischyrocerus anguipes* Kroyer, var. *longimanus* Haswell. Stebbing (1), p. 649; Barnard (40), pp. 264-265; Stephensen (36), p. 353 (both as *Wyvillea longimana* Haswell); Barnard (37), p. 393.

*Jassa falcata* (Mont.). Stebbing (1), p. 649 (as *J. pulchella*).

For literature and synonymy see Barnard (40), p. 263; Schellenberg (34), p. 383; Schellenberg (38), pp. 250-251; Barnard (39), p. 241.

The variability of the species is discussed by Sxcton [Jour. Mar. Biol. Ass., U.K. (N.S.), vol. ix, pp. 212-221].

The females of the family *Jassidae* closely resemble those of several genera of the *Ampithoidae*. They may be separated by:—

*Ampithoidae*: Lower lip deeply notched.

*Jassidae*: Lower lip not notched.

#### Family COROPHIIDAE.

*Cerapus abditus* Templeton. Stebbing (1), p. 650; Barnard (40), p. 271; Hale (23), p. 226.

*Siphonoecetes australis*. Stebbing (1), p. 619.

*Siphonoecetes sellicki* Sheard. Sheard (27), pp. 450-452.

The examination of a number of further specimens, collected at Sellick's Beach, indicates that this species is probably a synonym of *S. australis*. Both are very close to *S. smithianus* Rathbun.

*Paracorophium excavatum* (G. M. Thomson). Chilton (10), pp. 1-8.

*Dryopoides westwoodi* Stebbing. Stebbing (1), pp. 621-622.

#### Family PODOCERIDAE.

*Laetmatophilus hystrix* (Haswell). Stebbing (1), p. 650.

*Cyrtophium minutum* Haswell. Stebbing (1), p. 650.

*Leipsuropus parasiticus* (Haswell). Stebbing (1), p. 650.

*Podocerus inconspicuus* Stebbing. Stebbing (1), p. 650.

*Podocerus lobatus* (Haswell). Stebbing (1), p. 650.

- Podocerus cristatus* (G. M. Thomson). Stebbing (1), p. 651; Schellenberg (50), p. 188.  
*Podocerus laevis* (Haswell). Stebbing (1), p. 651.  
*Podocerus hystrix* Stebbing. Stebbing (1), pp. 622-624.  
*Icilius australis* Haswell. Stebbing (1), p. 628; Chilton (11), pp. 88-89; Hale (23), pp. 227-228.  
*Icilius punctatus* Haswell. Stebbing (1), p. 627; Chilton (11), p. 88.  
*Icilius danai* Stebbing. Stebbing (1), p. 626; Chilton (11), p. 88.

## Family CHELURIDAE.

*Chelura terebrans* Phil. Schellenberg (51), pp. 673-674 (Literature); McNeill (25), pp. 19-20 (as *Chelura cambricans* McNeill).

Specimens of McNeill's species have been examined by H. M. Hale, who states (in MS.) that they are inseparable from *C. terebrans*.

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